

## ACTION SHEET 27

The United States Department of Energy (DOE)  
and  
The Power Reactor and Nuclear Fuel Development Corporation of Japan(PNC)  
for

### Joint Study of Nondestructive Assay Techniques for Low Activity Solid Wastes

#### 1. Introduction

Under Article III (Area of Cooperation) of the Agreement between PNC and DOE for Cooperation in Research and Development Concerning Nuclear Material Control and According Measures for Safeguards and Nonproliferation (herein called the "Agreement"), dated September 15, 1993, DOE and PNC undertake to carry out a cooperative effort on a joint study of nondestructive assay techniques for low activity solid wastes.

#### 2. Scope of Work

A feasibility study will be performed to evaluate the technical approaches for measuring low activity solid wastes(LASW) in 200-l drum containers. The waste types and specifications will be obtained from PNC. The study will evaluate technical approaches that are suitable to the Tokai Reprocessing Plant(TRP). Performance specifications for the technical options will be developed and PNC will be provided with quantitative estimates of performance and error estimates for the most promising option. The results of the feasibility study will be documented in a final report.

The work performed under this Action Sheet shall be performed at the Los Alamos national Laboratory(LANL) and PNC facilities in accordance with the terms and conditions of the Agreement.

#### 3. Program Management

LANL is responsible for the conduct of the feasibility study on LASW measurements. Work to be done is identified in Appendix I and is limited to techniques for nuclear safeguards applications. PNC is responsible for providing design information, operating data, and other information required for completion of the joint studies. Appendix II identifies key personnel working on this project.

DOE and LANL shall work directly with PNC in planning tasks and resolving programmatic and technical questions. LANL shall start by developing and circulating separate work plans with projected milestones for each task and update the work plans with PNC concurrence as work progresses.

LANL shall prepare brief quarterly letter progress reports on each task and circulate them to PNC, DOE, and to other pertinent organizations as requested by PNC.

LANL and PNC shall prepare and present written and oral reports at meetings of the Permanent Coordinating Group(PCG).

#### 4. Fiscal Management

PNC shall make a cash contribution with the sum of \$200,000 in United States dollars to conduct the activities related to the completion of joint studies into safeguards techniques at TRP as defined in Appendix I of this Action Sheet in the following manner:

- a.) A contribution of \$50,000 in United States dollars shall be due and payable upon receipt of an invoice to be issued in JFY 1996(Japanese Fiscal Year) after the date of signature of the Action Sheet.
- b.) A contribution of \$150,000 in the United States dollars shall be due and payable upon receipt of an invoice to be issued in April 1997. This payment is subject to approval and the appropriation of necessary funding by the Japanese Government for JFY 1997.

All contributions by PNC shall be due and payable within thirty days of receipt by PNC of an invoice from DOE, subject to availability of appropriated funds to PNC.

DOE shall be responsible for the budget planning and financial management and shall make best efforts to complete the PNC-funded activities in the Appendix I satisfactorily and within the cash contribution by PNC. DOE costs are determined in accordance with DOE's policy for costing work it performs for others as set forth in 10 CFR Part 1009. The total cost to PNC for DOE's performance of work under this Action Sheet shall not, without PNC's prior consent, exceed the contributions set forth above.

DOE shall not begin or carry out work prior to entry into force of the Agreement and Action Sheet and receipt of the required payment in advance. Work shall not be continued after funds from PNC have been depleted.

Throughout the duration of work under this Action Sheet, PNC shall provide sufficient funds in advance to reimburse DOE for causing LANL to perform the work described in this Action Sheet, and DOE shall have no obligation to perform in the absence of adequate advance funds. Payment in advance from PNC shall be sufficient to cover the expected obligation and cash requirements of the work until a subsequent request for payment in advance can be made, collected and recorded. In this regard, sufficient advance funds shall be provided to maintain, at a minimum, a continuous 90-days advance of funds for expected DOE fund requirements during the life of this Action Sheet. Advances shall be sufficient to cover expected termination costs that DOE would incur on behalf of PNC.

5. Duration and Termination

This Action Sheet shall enter into force upon the later date of signature and shall continue in force for a two year period or until mutually agreed by the parties that all activities under this Action Sheet are completed.

For the United States Department of  
energy

Signature: \_\_\_\_\_

Printed  
Name: Kenneth E. Sanders

Director,  
International Safeguards Division

Title: \_\_\_\_\_

Date: February 24, 1997

For the Power Reactor and Nuclear Fuel  
Development Corporation of Japan

Signature: \_\_\_\_\_

Printed  
Name: Masami Katsuragawa

Director  
Title: International Division

Date: November 1, 1996

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### APPENDIX I

#### Joint Study of Nondestructive Assay Techniques for Low Activity Solid Wastes

##### 1. Study Outline

This program involve the joint development of nondestructive measurement techniques for measuring low activity solid waste. In this study, the major LANL activities are as follows:

##### Phase I

1. Obtain waste categories and specifications from PNC.
2. Define performance goals and operational constraints.
3. Evaluate technical options for the LASW.
4. Develop specifications for the measurement system.
5. Provide PNC with a summary report of the feasibility study.

##### Phase II

Phase II is to be determined pending the outcome of Phase I.

##### 2. Site

This work will be conducted at:

Los Alamos National Laboratory  
Los Alamos, New Mexico, USA

and

Tokai Reprocessing Plant, PNC  
Tokai-mura, Japan

### 3. Programmatic Responsibilities

A. LANL will be responsible for providing best efforts within the funding and schedule for the study. Any tests or technical assistance shall be provided on a non-interference basis with existing LANL programs.

B. PNC will be responsible for facility specific program direction.

As more detailed program plans are developed, specific responsibilities will be better defined and delineated.

### 4. Schedule \*

Low Activity Solid Waste	CY 1996				CY 1997			
	1	2	3	4	1	2	3	4
Phase I								
Obtain Waste Categories		X						
Define Performance Goals and Constraints			X	X				
Evaluate Technical Options				X	X	X		
Develop Measurement System Specifications						X	X	
Document Feasibility Study Report						X		
Phase II								
To Be Determined								

\* The schedule will be followed on a best-effort basis commencing on receipt of funding and availability of parts.

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### APPENDIX II

#### Joint Study of Nondestructive Assay Techniques for Low Activity Solid Wastes

##### Power Reactor and Nuclear Fuel Development Corporation

###### 1. PNC Headquarters

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Takeshi Kawamura, General Manager

International Cooperation Office

International Division

Power Reactor and Nuclear Fuel Development Corporation

Sankaidoh Building

9-13,1-Chome, Akasaka

Minato-Ku, Tokyo, 107, JAPAN

###### 2. Tokai Reprocessing Plant

Toshihide Sugiyama, General Manager

TRP

Power Reactor and Nuclear Fuel Development Corporation

Tokai-mura, Ibaraki-ken

Japan Post No.319-11

Department of Energy

1. DOE Headquarters

Kenneth Sanders, Director  
International Safeguards Division  
Office of Arms Control and Nonproliferation (NN-44, GA017)  
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John Capps  
International Safeguards Division  
Office of Arms Control and Nonproliferation (NN-44, GA017)  
Department of Energy  
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2. DOE-Albuquerque Operations Office

James R. Anderson, Director  
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3. Los Alamos National Laboratory

Howard O. Menlove  
Group NIS-5, MS E540  
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